E/ECE/324
E/ECE/TRANS/505 } Rev.2/Add.104

3 July 1998

AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM TECHNICAL PRESCRIPTIONS FOR WHEELED VEHICLES, EQUIPMENT AND PARTS WHICH CAN BE FITTED AND/OR BE USED ON WHEELED VEHICLES AND THE CONDITIONS FOR RECIPROCAL RECOGNITION OF APPROVALS GRANTED ON THE BASIS OF THESE PRESCRIPTIONS */

(Revision 2, including the amendments entered into force on 16 October 1995)

Addendum 104: Regulation No. 105

Date of entry into force: 7 May 1998

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES INTENDED FOR THE CARRIAGE OF DANGEROUS GOODS WITH REGARD TO THEIR SPECIFIC CONSTRUCTIONAL FEATURES

UNITED NATIONS

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*/ Former title of the Agreement:

Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

GE.98- 21703

Regulation No. 105

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES INTENDED FOR THE CARRIAGE OF DANGEROUS GOODS WITH REGARD TO THEIR SPECIFIC CONSTRUCTIONAL FEATURES

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ANNEXES

Annex 1 - Communication concerning the approval or extension or refusal or withdrawal of approval or production definitely discontinued of a vehicle type with regard to specific constructional features for the transport of dangerous goods

Annex 2 - Arrangements of approval marks

1. SCOPE

The provisions of this Regulation apply to the construction of base vehicles of motor vehicles of category N and their trailers of categories O2, O3 and O4 which are subject to marginal 10 282 or 11 282 of annex B of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), as amended.

2. DEFINITIONS

For the purpose of this Regulation:

2.1. "Base vehicle" (hereinafter referred to as "vehicle") means a chassis-cab vehicle, a tractor for semi-trailer, a trailer-chassis or a trailer with a self-supporting body intended for the transport of dangerous goods;

2.2. "Vehicle type" means vehicles which do not differ essentially with regard to the constructional features specified in this Regulation.

3. APPLICATION FOR APPROVAL

3.1. The application for approval of a vehicle type with regard to its specific constructional features shall be submitted by the vehicle manufacturer or by his duly accredited representative.

3.2. The application for approval shall be accompanied by the undermentioned documents in triplicate and by the following particulars:

3.2.1. A detailed description of the vehicle type with respect to its relevant structure, engine (compression-ignition, positive-ignition), dimensions, configuration and constituent materials;

3.2.2. Vehicle designation, according to marginal 220 301(2) of the ADR (EX/II, EX/III, AT, FL, OX);

3.2.3. Drawings of the vehicle;

3.2.4. The maximum technical mass (kg) of the complete vehicle.

3.3. A vehicle representative of the type to be approved shall be submitted to the technical service responsible for conducting the approval tests.

4. APPROVAL

4.1. If the vehicle submitted for approval pursuant to this Regulation meets the provisions of paragraph 5 below, approval of that vehicle type shall be granted.

4.2. An approval number shall be assigned to each type approved. Its first two digits (00 for the Regulation in its present form) shall indicate the series of amendment incorporating the most recent major technical amendments made to the provisions at the time of issue of the approval. The same Contracting Party may not assign the same number to another vehicle type within the meaning of paragraph 2.2. above.

4.3. Notice of approval or of extension of approval of a vehicle type pursuant to this Regulation shall be communicated to the Contracting Parties by means of a form conforming to the model reproduced in annex 1 to this Regulation.

4.4. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle conforming to a vehicle type approved under this Regulation an international approval mark consisting of:

4.4.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval. 1/

4.4.2. The number of this Regulation, followed by the letter "R", a dash and the approval number to the right of the circle prescribed in paragraph 4.4.1., and

4.4.3. An additional symbol separated from the approval number and consisting of the symbol identifying the vehicle designation in accordance with marginal 220 301(2) of the ADR.

4.5. If the vehicle conforms to a vehicle type approved under one or more other Regulations annexed to this Agreement, in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 4.4.1. need not be repeated; in this case the Regulation and approval numbers and the additional symbols of all the Regulations under which approval has been granted in the

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1/ 1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24 (vacant), 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30 (vacant), 31 for Bosnia-Herzegovina, 32-36 (vacant), 37 for Turkey, 38-39 (vacant) and 40 for The former Yugoslav Republic of Macedonia. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify the Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, or in which they accede to that Agreement, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 4.4.1.

4.6. The approval mark shall be clearly legible and be indelible.

4.7. The approval mark shall be placed close to or on the vehicle data plate affixed by the manufacturer.

4.8. Annex 2 to this Regulation gives an example of the approval mark.

5. TECHNICAL PROVISIONS

5.1. Vehicles shall, depending on the vehicle designation, comply with the provisions below as assigned in the table overleaf.

5.1.1. ELECTRICAL EQUIPMENT

5.1.1.1. General provisions

The electrical installation as a whole shall meet the following provisions, in accordance with the table of paragraph 5.1.

5.1.1.2. Wiring

5.1.1.2.1. The size of conductors shall be large enough to avoid overheating. Conductors shall be adequately insulated. All circuits shall be protected by fuses or automatic circuit breakers, except for the following:

- from the battery to cold start and stopping systems of the engine
- from the battery to the alternator
- from the alternator to the fuse or circuit breaker box
- from the battery to the starter motor
- from the battery to the power control housing of the endurance braking system, if this system is electrical or electromagnetic
- from the battery to the electrical lifting mechanism for lifting the bogie axle

The above unprotected circuits shall be as short as possible.

	TECHNICAL SPECIFICATIONS	VEHICLE DESIGNATION (MARGINAL 220 301 (2) OF THE ADR)				
		EX/II	EX/III	AT	FL	OX
	Electrical equipment					
5.1.1.2	Wiring		X	X	X	X
5.1.1.3	Battery master switch		X		X	
5.1.1.4	Batteries	X	X		X	
5.1.1.5	Tachographs		X		X	
5.1.1.6	Permanently energized installations		X		X	
5.1.1.7	Electrical installation behind cab		X		X	
	Fire risks					
5.1.2.2.1	Cab : materials	X	X			
5.1.2.2.2	Cab : thermal shield					X
5.1.2.3	Fuel tanks	X	X		X	X
5.1.2.4	Engine	X	X		X	X
5.1.2.5	Exhaust system	X	X		X	
5.1.2.6	Endurance braking system		X	X	X	X
5.1.2.7	Auxiliary heating	X	X		X	X
	Braking					
5.1.3.1			X	X	X	X
5.1.3.2		X				
5.1.4	**Speed limitation**	X	X	X	X	X

5.1.1.2.2. Cables shall be securely fastened and positioned in such a way that the conductors are adequately protected against mechanical and thermal stresses.

5.1.1.3. Battery master switch

5.1.1.3.1. A switch for breaking the electrical circuits shall be placed as close to the battery as possible.

5.1.1.3.2. Direct or indirect control devices shall be installed, one in the driver's cab and a second on the outside of the vehicle. They shall be readily accessible and distinctively marked. The control device located in the driver's cab shall be within immediate reach of the driver seated in the driver's seat. It shall be protected against inadvertent operation by either adding a protective cover, or by using a dual movement control device or by other suitable means.

5.1.1.3.3. It shall be possible to open the switch while the engine is running, without causing any dangerous excess voltage. Operation of the switch shall not constitute a fire hazard in an explosive atmosphere; this can be ensured by using a switch having a casing with protection degree IP65 in accordance with IEC Standard 529.

5.1.1.3.4. The cable connections on the battery master switch shall have a protection degree IP54. However, this does not apply if these connections are contained in a housing which may be the battery box. In this case it is sufficient to insulate the connections against short circuits, for example with a rubber cap.

5.1.1.4. Batteries

The battery terminals shall be electrically insulated or covered by the insulating battery box cover. If the batteries are not located under the engine bonnet, they shall be fitted in a vented box.

5.1.1.5. Tachographs

The electrical supply to the tachograph shall be provided via a safety barrier connected directly to the battery. The tachograph and the safety barrier shall meet the requirements for associated electrical equipment according to European Standard EN 50 020.

5.1.1.6. Permanently energized installations

Those parts of the electrical installation, other than the tachograph, which remain energized when the battery master-switch is open, shall be suitable for use in a hazardous area and shall meet the appropriate requirements of European Standard EN 50 014 and one of European Standards EN 50 015 to 50 020 or EN 50 028. The requirements for the relevant gas group according to the product being carried shall be met.

5.1.1.7. Provisions concerning that part of the electrical installation situated to the rear of the driver's cab

The whole installation shall be so designed, constructed and protected such that it cannot provoke any ignition or short-circuit under normal conditions of vehicle use and that these risks can be minimized in the event of an impact or deformation. In particular:

5.1.1.7.1. Wiring

The wiring located behind the driver's cab shall be protected against impact, abrasion and chafing during normal vehicle operation. Examples of appropriate protection are given in the figures 1, 2, 3 and 4 overleaf. However, the sensor cables of anti-lock braking devices do not need additional protection.

5.1.1.7.2. Lighting

Lamp bulbs with a screw cap shall not be used.

5.1.1.7.3. Electrical connections

Electrical connections between motor vehicles and trailers shall have a protection degree IP54 in accordance with IEC standard 529 and be designed to prevent accidental disconnection. Examples of appropriate connections are given in ISO 12 098:1994 and ISO 7638:1985.

5.1.1.7.4. Electrical lifting mechanism

The electrical equipment of the mechanism for lifting a bogie axle shall be installed outside the chassis frame in a sealed housing.

5.1.2. Prevention of fire risks

5.1.2.1. The following technical provisions shall apply in accordance with the table of paragraph 5.1.

5.1.2.2. Vehicle cab

5.1.2.2.1. Only material not readily flammable shall be used in the construction of the driver's cab. This provision will be deemed to be met if, in accordance with the procedure specified in ISO standard 3795:1989, samples of the following cab components have a burn rate not exceeding 100 mm/min : seat cushions, seat backs, safety belts, head lining, opening roofs, arm rests, all trim panels including door, front, rear and side panels, compartment shelves, head restraints, floor coverings, sun visors, curtains, shades, wheel housing covers, engine compartment covers, mattress covers and any other interior materials, including padding and crash-deployed elements, that are designed to absorb energy on contact by occupants in the event of a crash.

Figure No.1

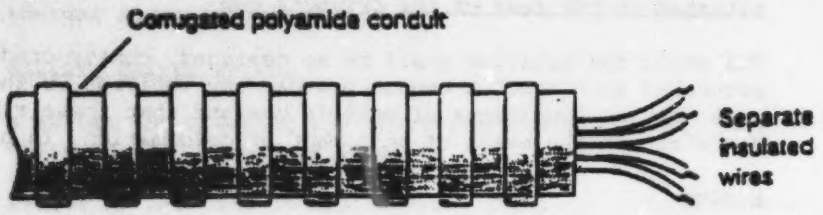


Figure No.2

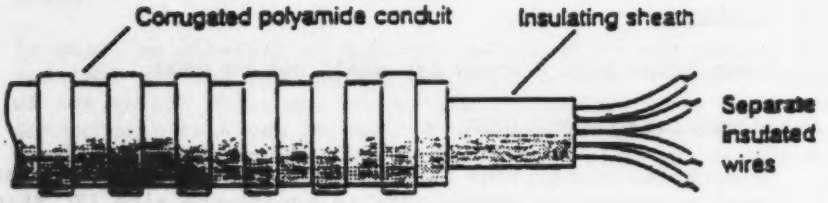


Figure No.3

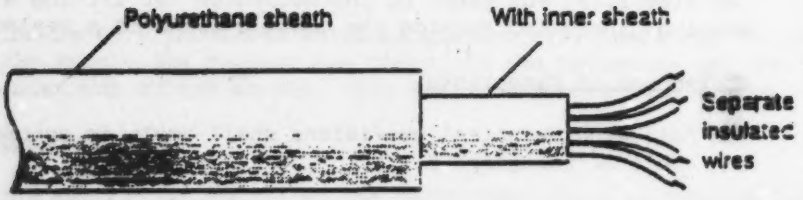
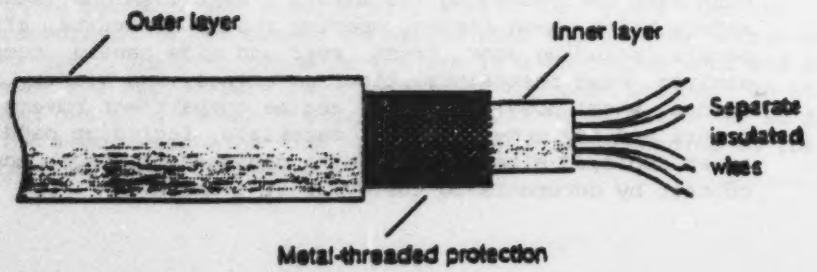


Figure No.4



5.1.2.2.2. Unless the driver's cab is made of not readily flammable materials, a shield made of metal or other suitable material of the same width as the tank shall be fitted at the back of the cab. Any windows in the back of the cab or in the shield shall be hermetically closed and made of fire resistant safety glass with fire resistant frames. Furthermore, there shall be a clear space of not less than 15 cm between the tank and the cab or the shield.

5.1.2.3. Fuel tanks

The fuel tanks for supplying the engine of the vehicle shall meet the following requirements:

5.1.2.3.1. The fuel tanks shall be so placed as to be protected as far as possible against any collision;

5.1.2.3.2. In the event of any leakage, the fuel shall drain to the ground without coming into contact with hot parts of the vehicle or the load;

5.1.2.3.3. Fuel tanks containing petrol shall be equipped with an effective flame trap at the filler opening or with a closure with which the opening can be kept hermetically sealed.

5.1.2.4. Engine

The engine propelling the vehicle shall be so equipped and situated to avoid any danger to the load through heating or ignition. In vehicles designated EX/II and EX/III the engine shall be placed forward of the front wall of the body: it may nevertheless be placed under the body, provided this is done in such a way as to avoid any heating, even localized, of the load.

5.1.2.5. Exhaust system

The exhaust system as well as the exhaust pipes shall be so directed or protected to avoid any danger to the load through heating or ignition. Parts of the exhaust system situated directly below the fuel tank (diesel) shall have a clearance of at least 100 mm or be protected by a thermal shield. In vehicles designated EX/II and EX/III the exhaust system shall be placed forward of the front wall of the body or separated from the load-carrying part of the vehicle by a fire-resistant and heat-insulating screen. In this case the exhaust pipe outlet shall be directed outwards from the vehicle.

5.1.2.6. Vehicle endurance braking

Vehicles equipped with endurance braking systems emitting high temperatures placed behind the rear wall of the driver's cab shall be equipped with a thermal shield securely fixed and located between this system and the tank or load so as to avoid any heating, even local, of the tank shell or the load.

In addition, the thermal shield shall protect the braking system against any outflow or leakage, even accidental, of the load. For instance, a protection including a twin-shell shield shall be considered satisfactory.

5.1.2.7. Auxiliary heating device

Auxiliary heating for the cab shall be sufficiently secure from the standpoint of fire prevention and shall be placed forward of the protective wall (rear wall of the cab). The heating appliance shall be placed as far forward and as high as possible (at least 80 cm above floor level) and shall be fitted with devices preventing any object from being brought into contact with the hot surfaces of the appliance or its exhaust pipe. Only appliances with a means of rapidly restarting the combustion air ventilator (max. 20 s) may be used.

5.1.3. Braking

5.1.3.1. Vehicles subject to the requirements of marginal 10 221 of ADR shall fulfil all relevant requirements of Regulation No. 13 including those of annex 5.

5.1.3.2. Other vehicles shall fulfil all relevant requirements of Regulation No. 13 except those of annex 5.

5.1.4. Speed limitation

Motor vehicles (rigid vehicles and tractors for semi-trailers) with a maximum mass exceeding 12 tonnes, shall be equipped with a speed limitation device according to the provisions of ECE Regulation No. 89. The limitation speed V as defined in paragraph 2.1.1. of ECE Regulation No. 89 shall not exceed 85 km/h.

6. MODIFICATION OF THE VEHICLE TYPE AND EXTENSION OF APPROVAL

6.1. Every modification of the vehicle type shall be notified to the administrative department which approved the vehicle type. The department may then either:

6.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the vehicle still complies with the requirements, or

6.1.2. Require a further test report from the technical service responsible for conducting the tests.

6.2. Confirmation or refusal of approval, specifying the alteration, shall be communicated by the procedure specified in paragraph 4.3. to the Contracting Parties.

6.3. The competent authority issuing an extension of approval shall assign a series number to each communication form drawn up for such an extension and inform thereof the other Parties by means of a communication form conforming to the model in annex 1 to this Regulation.

7. CONFORMITY OF PRODUCTION

The conformity of production procedures shall comply with those set out in the Agreement, Appendix 2 (E/ECE/324-E/ECE/TRANS/505/Rev.2), with the following requirements:

7.1. Vehicles approved to this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraph 5 above.

7.2. The competent authority which has granted type-approval may at any time verify the conformity control methods applicable to each production facility. The normal frequency of these verifications shall be once per two years.

8. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

8.1. The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirement laid down in paragraph 7. above is not complied with.

8.2. If a Contracting Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith notify the other Contracting Parties applying this Regulation, by means of a communication form conforming to the model in annex 1 to this Regulation.

9. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a type of vehicle under this Regulation, he shall so inform the authority which granted the approval. Upon receiving the relevant communication, that authority shall inform thereof the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in annex 1 to this Regulation.

10. NAMES AND ADDRESSES OF TECHNICAL SERVICES CONDUCTING APPROVAL TESTS, AND ADMINISTRATIVE DEPARTMENTS.

The Contracting Parties to the Agreement applying this Regulation shall communicate to the secretariat of the United Nations the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or extension or refusal or withdrawal of approval, issued in other countries, are to be sent.

Annex 1

COMMUNICATION

(maximum format: A4 (210 x 297 mm))

issued by: Name of administration:
.....
.....
.....

concerning: 2/ APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a vehicle type with regard to specific constructional features for the transport of dangerous goods.

Approval No.: ..... Extension No.: .....

1. Trade name or mark of the vehicle . . . . . .

2. Vehicle category: N1, N2, N3, O2, O3, or O4: . . . . . .
(chassis-cab, tractor for semi-trailer, trailer-chassis, trailer with a self-supporting body 2/).

3. Vehicle type: . . . . . .

4. Vehicle designation (EX/II, EX/III, FL, OX, AT): . . . . . .

5. Manufacturer's name and address: . . . . . .

6. If applicable, name and address of manufacturer's representative: . .
. . . . . .

7. Mass of the vehicle:

7.1. Technical maximum mass of complete vehicle: . . . . . .

8. Specific equipment of the vehicle:

8.1. The vehicle is/is not 2/ equipped with specific electrical devices.
Summary description . . . . . .

8.2. The vehicle is/is not 2/ equipped with devices for the prevention of fire risks.

Summary description . . . . . .

8.3. In the case of a motor vehicle:

8.3.1. Type of engine: positive-ignition, compression-ignition 2/

9. Vehicle submitted for approval on: . . . . . .

10. Technical service responsible for carrying out approval inspections: . . . . . .

11. Date of report issued by that service: . . . . . .

12. Number of report issued by that service: . . . . . .

13. Approval granted/refused/extended/withdrawn 2/ . . . . . .

14. Position of approval mark on the vehicle: . . . . . .

15. Place: . . . . . .

16. Date: . . . . . .

17. Signature: . . . . . .

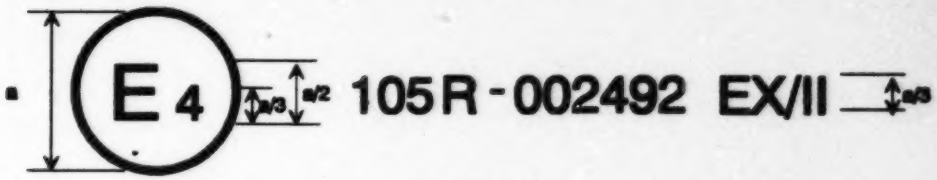
1/ Distinguishing number of the country which has granted/extended/refused or withdrawn approval (see footnote 1/ to paragraph 4.4.1.).

2/ Strike out what does not apply.

Annex 2

ARRANGEMENTS OF APPROVAL MARKS

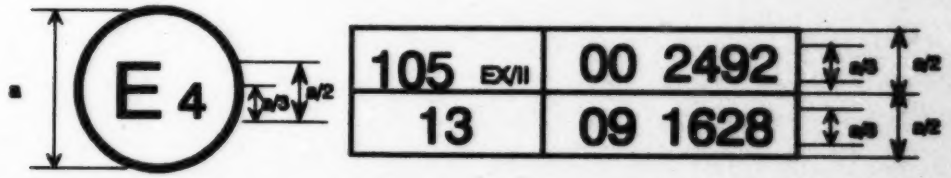
Model A
(see paragraph 4.4. of this Regulation)



a = 8 mm min.

The above approval mark affixed to a vehicle shows that the vehicle type concerned, intended for the transport of dangerous goods, has been approved in the Netherlands (E4), pursuant to Regulation No. 105, under the approval number 002492 and designated EX/II (according to marginal 220 301(2) of the ADR). The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 105 in its original form.

Model B
(see paragraph 4.5. of this Regulation)



a = 8 mm min.

The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the Netherlands (E4) pursuant to Regulations Nos. 105 and 13 1/. The first two digits of the approval numbers indicate that, at the dates when respective approvals were granted, Regulation No. 105 was in its original form, while Regulation No. 13 already included the 09 series of amendments.

1/ The second Regulation number is given merely as an example.